COUPP 2l SNOLAB Degassing Hazard Analysis

Activity	Hazard	Mitigation
Mechanical Installation:		
Moving Water Shielding	Tank Rupture	Ensure tank is empty prior to lifting. Lift only from designated lifting points.
	Crush Hazard	Lifts to be performed only by designated SNOLAB personnel. Tanks to be secured against toppling or barricaded before end of shift.
Moving Degassing Vessel by fork lift	Crush Hazard by dropping	Only trained SNOLAB personnel to arrange loads and perform lift. COUPP personnel to stand clear during lift.
Rotating Accumulator Tanks	Pinch Hazard	Communicate prior to lifting
Hydraulic hose plumbing	Ladder Hazard	Communicate prior to using ladder, do not leave tools on ladder.
Glycol Degassing		
Degassing Vessel Fill	Glycol spill	Wear appropriate gloves. Draw glycol only through bung-hole, (<6" diameter) or use respirator. See glycol vapor exposure analysis.
Heat Degassing Vessel	Hot Surface	Two calibrated temperature switches in series limit temperature of heating pads to 60 C. Cover chamber in with multiple layers of insulation.
	Glycol Combustion	Two calibrated temperature switches in series limit temperature of heating pads to 60 C. (Glycol flash point is 103 C) Keep steady-state variac setting as low as possible. Attend heated degassing and monitor TI6 monitored whenever heaters are energized.

Pump Degassing Vessel	Glycol Vapor	Activated charcoal filter on output of pump
Pump Degassing Vessel (cont.)	Glycol Boiling	Metered valve MV-32 keeps pressure above glycol vapor pressure at vacuum port of degassing vessel, measured by PI-8. Glycol vapor pressure is 2 torr at 60 C. Attend chamber and monitor PI-8 and sight gauge when pump is on.
Accumulator Tank air-side venting and bleeding	Noise	Ear plugs and eye protection should be worn by the person venting the air-side of accumulator tanks. Alert personnel in the area before venting begins.
Accumulator Tank charging	Compressed air	Eye protection
Degassed Glycol Transfer	Accidental exposure of Degassing Vessel to pressurized glycol	Add no more than 10 gallons (cumulative) glycol to the system when filling degassing tank. Total glycol in system will be low enough that, with pneumatic piston fully down and both accumulator tanks empty, the glycol level in the degassing vessel does not reach the safety release valve. Keep the degassing vessel evacuated when possible. Chamber must be attended during transfers. If pressure safety valve releases or glycol level in sight gauge climbs suddenly, follow Emergency Procedure.
	MV-14 operation (Ladder use)	Alert workers in area to use of ladder. Do not leave tools on ladder.

See also:
COUPP2l Phase II Hazard Analysis
http://coupp-docdb.fnal.gov/cgi-bin/ShowDocument?docid=289
Glycol vapor exposure Hazard Analysis
http://coupp-docdb.fnal.gov/cgi-bin/ShowDocument?docid=303